

Fact Sheet
Draft- Blue Grass Army Depot- Draft
Blue Grass Chemical Agent-Destruction Pilot Plant, RD&D Permit
July 13, 2005
Richmond, Madison County, Kentucky
EPA ID KY8-213-820-105, AI 2805

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The Kentucky Environmental and Public Protection Cabinet, Division of Waste Management (Division) has tentatively approved a Research Development and Demonstration (RD&D) permit for the Blue Grass Chemical Agent-Destruction Pilot Plant (BGCAPP) at the Blue Grass Army Depot (BGAD), at 2091 Kingston Highway, Richmond, Kentucky. Bechtel Parsons Blue Grass is a Co-Permittee with BGAD.

The BGAD facility contact is Todd Williams (859) 779-6280. The Bechtel Parsons Blue Grass (BPPG) contact is Tom Kurkijy (859) 625-1285, takurkijy@bechtel.com.

This permit will allow for construction, testing, and demonstration of a facility to destroy the BGAD stockpile of chemical munitions. The permit is limited to treating the chemical agent GB (sarin).

Purpose of the Permitting Process

The Division has tentatively decided to issue a RD&D permit to BGAD and BPPG (Permittee) to construct a hazardous waste treatment facility for chemical munitions. The permit includes conditions required under the United States Resource Conservation and Recovery Act (RCRA) and portions of the Hazardous and Solid Waste Amendments (HSWA).

The permitting process gives the public the opportunity to evaluate the Permittee's ability to comply with the hazardous waste management regulations. The Division must prepare a "draft" permit that identifies within one concise document, every applicable requirement that must be met. The public has 45 days to review the draft permit and submit comments before the Cabinet makes any final permit decision. Public health, safety, and environmental issues have been considered in the review of the permit application.

Facility Description

The Blue Grass Army Depot (BGAD) is a 14,596-acre facility operated by the United States Army and is located within Madison County, Kentucky. The depot was established in April 1942 during World War II by the War Department as an expansion of ordnance supply depots. BGAD has 902 munitions storage igloos total, of which 46 contain chemical munitions or Chemical Related Hazardous Waste.

This permit is for a chemical munitions treatment facility, defined as the area (and all included buildings and equipment), within the proposed double fence near the Chemical Limited Area, within BGAD. The purpose of the facility is to treat chemical munitions and materials, currently stockpiled at BGAD, primarily using chemical neutralization technology. A complete description of the facility and processes is included in the "Blue Grass Chemical Agent-Destruction Pilot

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Plant, Research, Development and Demonstration Permit Application, November 2004, Revision 2”.

Research, Development, & Demonstration

This is the first Hazardous Waste RD&D permit drafted by the Division. RD&D permits are intended to expedite the permitting process for new and innovative hazardous waste treatment technologies. It is not the policy of the Division to widely use the RD&D permitting process, solely to expedite permits.

It is the opinion of the Division that this is the appropriate permitting process for BGCAPP for the following reasons:

- Chemical Agent neutralization is a proven technology. The facility operators intend to **demonstrate** that the various process components at BGCAPP can function together in a commercial scale facility.
- This permit has performance based conditions, such as requiring 99.9999% destruction efficiency of chemical agent. Process parameters are not prescribed. This allows the facility to **develop** appropriate process parameters (such as time and temperature) based on **research** data collected on the initial, and subsequent, “real world” neutralization batches., while still meeting the required destruction efficiency.
- There is an increasing risk to human health and the environment from long term storage of the **aging chemical munitions**. Hazardous waste treatment facilities can not begin construction, until a permit is issued. It is the opinion of the Division that adequate design information is already available, or will be available, in time to approve staged construction activities. This RD&D permit will allow for construction activities to begin.
- There is a very comprehensive **Compliance Schedule**, incorporated into the permit. The Compliance Schedule **requires** that the facility provide to the Division, on a time schedule, various packets of information, which **require approval**, before treating chemical munitions.

Design Changes

This permit is based on “Blue Grass Chemical Agent-Destruction Pilot Plant, Research, Development and Demonstration Permit Application, November 2004, Revision 2”. Any proposed change to the facility, as submitted in this application will be reviewed and classified as a major or minor modification according to 401 KAR 38:040. Major modifications request will be Public Noticed according to regulations.

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Activity, which is the Subject of the Draft Permit

The BGCAPP will generate secondary hazardous waste streams. They may be transported with a hazardous waste manifest. The following is a list of the secondary waste streams that will be disposed of off-site.

WASTE STREAM #	WASTE CODE	DESCRIPTION
1	D003, D004, D005, D006, D007, D008, D009, D010, D011, D022, D024, D029, D037, N001, N002, and/or N003	Metal Parts Treater Residues
2	D003, D004, D005, D006, D007, D008, D009, D010, D011, D022, D024, D029, D037, N001, N002, and/or N003	Energetic Batch Hydrolyser/Heater discharge Conveyor Residues
3	D003, D004, D005, D006, D007, D008, D009, D010, D011, D022, D024, D029, D037, N001, N002 and/or N003	Aluminum Filtration System Precipitate
4	D003, D004, D005, D006, D007, D008, D009, D010, D011, D022, D024, D029, D037, N001, N002 and/or N003	Water Recovery Salts
5	F001, F002, F003, F004, and/or F005	Metal Parts Washer
6	D003, D004, D005, D006, D007, D008, D009, D010, D011, D022, D024, D029, D037, N001, N002 and/or N003	Closure Waste

D001- Ignitable Waste; D003- Reactive Waste; D004- Arsenic; D005- Barium; D006- Cadmium; D007- Chromium; D008- Lead; D009- Mercury; D010- Selenium; D011- Silver; D022- Chlordane; D024- m-Cresol; D029- 1,1-Dichloroethylene; D037- Pentachlorophenol; D037- Pentachlorophenol; N001- GB (isopropyl methyl phosphonoflouridate); N002- VX (0-ethyl-S-(2-diisopropyl-aminoethyl) -methyl phosphonothiolate); N003- H (bis(2-chloroethyl) sulfide) and related compounds.

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This permit allows BGCAPP to build and operate the following regulated hazardous waste units.

Unit Name	Process Code	Process Capacity	Unit of Measure	No. of Individual Units
Container Handling Building (CHB)	S01	6500	Gallons	1
Unpack Area (UPA)	S01	1000	Gallons	1
Explosive containment Vestibule (ECV)	S01	600	Gallons	1
Explosive containment Room (ECR)	S01	30	Gallons	2
Toxic Maintenance Area	S01	5500	Gallons	1
Dunnage Storage Area	S01	24000	Gallons	1
MDB Residue Handling Area	S01	24000	Gallons	2
Spent Decon Storage	S01	500	Gallons	1
Laboratory Waste Handling Area	S01	2200	Gallons	1
DSH Residue Handling Area	S01	5500	Gallons	2
Agent collection/Toxic Storage Tanks	S02	3600	Gallons	3
Spent Decon Storage	S02	20000	Gallons	2
Hydrolysate Sampling Tanks	S02	160000	Gallons	4
Brine Storage Tank	S02	152000	Gallons	2
Recovered/Process Water Storage Tanks	S02	228000	Gallons	3
Hydrolysate Storage Tanks	S02	3210000	Gallons	9
Laboratory Chemical Waste Tank	S02	1600	Gallons	1
Rocket shear Machine (RSM)	X02	1661	Pounds per hour	2
Projectile/Mortar Disassemble System	X02	315	Pounds per hour	1

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(PMD)				
Energetics Batch Hydrolyzer (EBH)	X99	846	Gallons per hour	18
Heated Discharge Conveyor (HDC)	X03	1485	Pounds per hour	2
Energetics Neutralization System	T01	3200	Gallons per hour	6
Aluminum Removal System	X99	20000	Pounds per hour	1
Munition Washout System (MWS)	X02	871	Pounds per hour	3
Metal Parts Treater (MPT)	X03	6998	Pounds per hour	2
Nose Closure Removal System (NCRS)	X02	581	Pounds per hour	2
Agent Neutralization System	T01	4321	Pounds per hour	4
Wood Shredder	X02	340	Pounds per hour	1
Micronizer	X02	340	Pounds per hour	1
Plastic Shredder	X02	7.5	Pounds per hour	2
Carbon Grinder	X02	160	Pounds per hour	1
Hydropulper	X02	4200	Gallons per hour	2
Super Critical Water Oxidizer (SCWO)	X99	8000	Pounds per hour	8
Brine Concentrator	X99	3000	Gallons per hour	2
Water Recover System	X03	21600	Gallons per day	1

S01- Container Storage Area; S02- Tank Storage; X02- Mechanical Processing; X03- Thermal Unit; X99- Other Subpart X (Miscellaneous Unit); T01- Tank Treatment

Basis for Draft Permit Conditions

The permit is divided into six parts: Part I sets forth the basic legal authority for issuing the permit; Part II contains the conditions that are specifically applicable to this particular facility; Part III contains standard conditions applicable to all hazardous waste management facilities; Part VI contains Land Disposal Restrictions, Part VII contains RCRA Organic Air Emission Requirements, and Part VIII contains all referenced attachments. The conditions are listed by subject matter, and in the opinion of the Cabinet, will ensure compliance with the referenced

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Kentucky Administrative Regulation (KAR) from Title 401, and more specifically, the hazardous waste management regulations.

Justification for Alternatives to Required Standards

There are three regulatory waiver requests which the Division has approved.

1. 401 KAR 34:180 Section 4(3)- “A container holding hazardous waste shall be labeled “Hazardous Waste” upon the date that hazardous waste is first added to the container”

The Enhanced Onsite Containers (EONC) will be labeled upon receipt at the Container Handling Building (CHB).

It is the opinion of the Division that the labeling of the individual munitions should not be done as this would require additional handling of the munitions prior to destruction, and may increase the risk to human health and the environment.

2. 401 KAR 34:180 Section 5- “Inspections. At least weekly, the owner or operator must inspect areas where containers are stored, looking for leaking containers and a deterioration of containers and the containment system caused by corrosion or other factors.”

In lieu of visual inspections of chemical munitions and containers inside of any EONC containing hazardous waste, that is stored in the Container Handling building more than seven (7) days, chemical agent monitoring of the air inside the EONC will be performed.

It is the opinion of the Division this practice maximizes safety of workers at the facility, while allowing BGCAPP personnel to detect leaking munitions.

3. 401 KAR 34:350- Section 2(2)(a)- “The permit applicant shall affirmatively demonstrate and the cabinet shall determine prior to issuance, conditional issuance or denial of the permit that:
(a) The proposed treatment or destruction technology has been proven in an operational facility of scale, configuration and throughput comparable to the proposed facility, for a period of time sufficient to provide assurance of 99.9999 percent destruction or neutralization of each substance proposed to be treated or destroyed. Destruction efficiency is determined for each waste from the following equation:

$$DE \% = \frac{(W_{in} - W_{out} - W_{res}) \times 100\%}{W_{in}}$$

Where:

W_{in} = Mass feed rate of waste to the incinerator.

W_{out} = Mass emission rate of the same waste present in exhaust emissions prior to release to the atmosphere.

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W_{res} = Mass removal rate of waste via the incinerator residues.

Because this equation is more applicable to incinerators (see W_{res}), it is the Division's opinion that the following equation is a more appropriate method of calculating the destruction efficiency for the BGCAPP:

$$\% \text{ Destruction efficiency} = 100\% \times (M_{in} - M_{out}) / M_{in}$$

Where:

M_{in} = Mass of agent per reactor batch into the Agent Neutralization System (ANS) Reactor

M_{out} = Mass of agent per reactor batch exiting the ANS in the hydrolysate.

Procedures for Reaching a Final Decision on the Draft Permit

The purpose of the permitting process is to afford interested citizens the opportunity to evaluate the ability of the Permittee to comply with applicable hazardous waste management regulations. The Cabinet is required to prepare a draft permit which sets forth, in one concise document, all applicable requirements that the Permittee will be required to carry out during the duration of the permit. The existence and availability of the draft permit is announced through a public notice, which is mailed to appropriate agencies and individuals indicated on the mailing list from the facility. The public notice is also published in a major local newspaper and broadcast over a commercial radio station in the city/county where the facility is located. The public notice announces the opening of a forty-five (45) day public comment period in which any interested person is encouraged to submit comments on the proposed activity.

The public comment period for BGAD's draft permit begins on July 17, 2005, the date the public notice was first published in the Richmond Register and Lexington Herald Leader newspapers. The public comment period will end on August 31, 2005.

The Division will conduct a public hearing (pursuant to 401 KAR 38:050, Section 9) for the draft permit on August 30, 2005. The hearing will be held at 6:00 Pm at the Carl Perkins building on the ECU campus in Richmond, KY. The purpose of the hearing will be to explain the crucial points in the draft permit and to accept oral and written comments from the public. Individuals and citizen groups are encouraged to present oral or written comments and data concerning the proposed permit. Reasonable limits may be set on the time allowed for oral statements. The Division will consider all comments received during the comment period in making a final decision regarding the permit application.

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The administrative record, which includes the draft permit and related information, can be reviewed at the following locations:

1. Madison County Public Library, Richmond Branch
507 West Main Street
[Richmond](#) KY 40475
2. Madison County Public Library, Berea Branch
319 E. Chestnut
[Berea](#) KY 40403

Point of contact:

Sue Hays, Director

(859) 625-1285

Email: suehays@madisonlibrary.org.

3. Blue Grass Chemical Stockpile Outreach Office
301 Highland Park Drive
Richmond, KY 40475

Point of contact:

Ms. Sandra Plant

(859) 626-8944

Email: outreach@bechtel.com

Business Hours: M-F 8:30 a.m. to 5 p.m.

4. Division of Waste Management
14 Reilly Road
Frankfort, Kentucky 40601-1190

Point of contact:

Maria Wood

(502) 564-9232 (fax)

Email: maria.wood@ky.gov

To make an appointment, submit a written request at least 72 hours prior to the desired review date. Copying charges are 10 cents per page, and \$2 for each map and blueprint, plus state sales tax. Upon request, this information can be made available in alternative formats.

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Anyone wishing to submit a comment, needing additional information, wanting to be put on the facility mailing list, or requesting a hearing should contact:

Shannon Powers
Kentucky Environmental and Public Protection Cabinet
Division of Waste Management
14 Reilly Road
Frankfort, Kentucky 40601
(502) 564-6716, ext. 246
Email: Shannon.powers@ky.gov

After consideration of all oral and written comments and requirements of state laws and regulations, the Secretary of the Environmental and Public Protection Cabinet will make a final decision regarding permit issuance. If the tentative decision to issue a permit is substantially changed, the Cabinet will issue a public notice indicating a revision of decision. If the tentative decision to issue a permit is substantially unchanged from those announced in the public notice, notification of issuance will be given to the applicant and each person who has submitted comments or who has requested notice of the final permit decision.

When a final permit is issued, the Cabinet will also release a Response to Comments document. All significant comments on the draft permit, raised during the public comment period, will be responded to in the Response to Comments document.

Any person who may be aggrieved by the issuance of the permit for the hazardous waste storage facility may file a petition with the Cabinet, which sets forth the grounds of the objection and the demand for a formal hearing pursuant to KRS 224.10-420(2). This type of hearing is held before a hearing officer. All parties are advised to have legal counsel present.

The Cabinet does not discriminate on the basis of race, color, national origin, sex, religion, age, or disability and provides, upon request, reasonable accommodations including auxiliary aids and services necessary to afford individuals with a disability an equal opportunity to participate in all programs and activities.